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941,439 COMPLETE SPECIFICATIC
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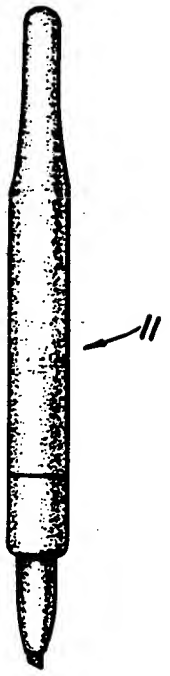

Fig. 1.

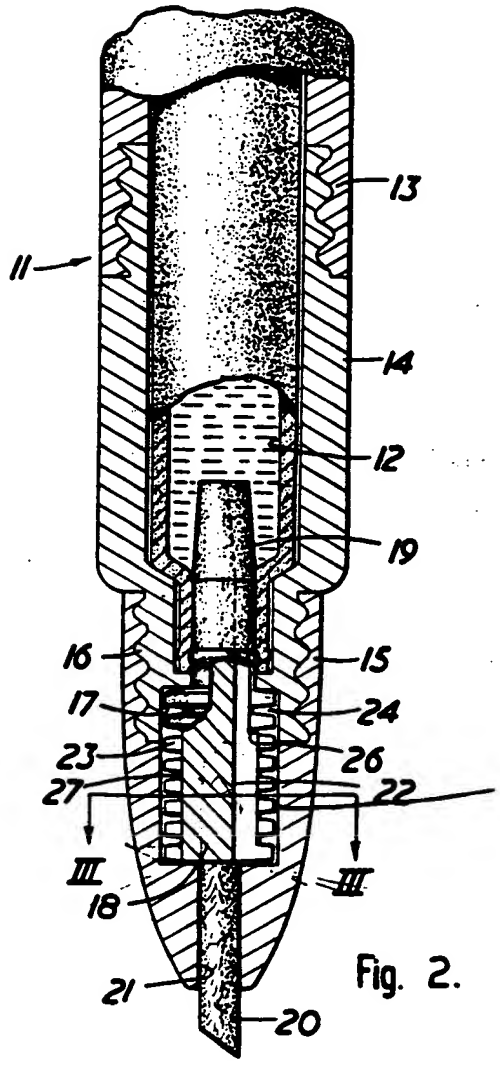

Fig. 2.

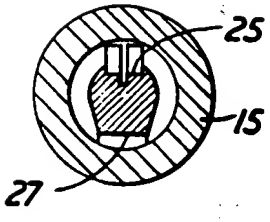

Fig. 3.

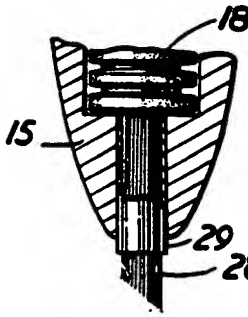

Fig. 4.

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PATENT SPECIFICATION

DRAWINGS ATTACHED

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941,439

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COMPLETE SPECIFICATION

Improvements in Liquid-applying Instruments

We, ROLL TIP (ENGLAND) LIMITED, a British Company, of 196 Great Cambridge Road, Enfield, Middlesex, do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed to be particularly described in and by the following statement:—

The present invention relates to liquid-applying instruments and is particularly concerned with an instrument for use in applying thick strokes of ink in say the preparation of posters and in sign writing.

Hitherto, pens utilising a felt tip have been employed, in which a reservoir for the ink is provided by a container housing a quantity of ink absorbing material such as cotton wool and in which the felt tip, in the form of a wick, is inserted in the open end of the container so as to receive a flow of ink therefrom. Such an instrument has been found to be unsatisfactory for the reason that the flow of ink to the felt tip is independent of the demand for ink and is therefore more than adequate in some conditions of use and entirely inadequate in others. It has therefore been common practice simply to employ a felt tipped holder and from time to time recharge the tip by dipping it into a supply of ink. Such recharging procedure is, however, time-absorbing and inconvenient.

It is an object of the present invention to provide an improved liquid-applying instrument employing a tip of a matt or felt of fibrous material or of brush bristles which does not suffer from the above-mentioned drawbacks.

According to the present invention there is provided a liquid-applying instrument comprising a cartridge filled with ink or other liquid, a feed member adapted to fit into an opening in the cartridge to permit a flow of liquid from the cartridge and a controlled intake of air into the cartridge, and a tip of a matt or felt of fibrous material or brush bristles extending from the end of the feed member remote from the cartridge so as to receive liquid therefrom.

Some embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which,

Fig. 1 shows an ink applying instrument according to one embodiment of the invention,

Fig. 2 is a sectional part view of the instrument shown in Fig. 1,

Fig. 3 is a cross-section taken on the line III—III in Fig. 2, and

Fig. 4 is a scrap view of an instrument according to another embodiment of the invention.

Referring first to Figs. 1 to 3, a barrel 11 for supporting an ink filled tubular plastic cartridge 12, comprises a rear body portion 13, an intermediate portion 14 on which the rear body portion 13 is adapted to be screwed, and a nose portion 15 which is adapted to be screwed on to a neck 16 on the intermediate portion 14. The nose portion 15, together with the neck 16 encloses a cylindrical space 17 within which is mounted the forward end of a feed member 18 which is provided with a spigot 19 adapted to engage as a push-fit in the forward reduced end of the cartridge 12. A felt tip 20 in the form of a cylindrical body engages as a push-fit in a bore 21 in the forward end of the nose portion 15, and the construction of the feed member 18 is such as to provide a controlled supply of ink from the cartridge 12 to the felt tip 20.

The feed member is formed with a capillary slot 22, which extends throughout its length and in operation ink is drawn through this slot by capillary action when ink is drawn from the tip 20. The forward portion of the

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feed member 18, which is located in the cylindrical space 17, is of generally cylindrical form and includes a plurality of circumferential fins 23 defining circumferential grooves 24 which provide a plurality of air passages round the feed member. The forward portion of the feed member 18 is also cut away to provide a longitudinal slot 25, which increases in depth at a step 26 and continues along the spigot of the feed member in the form of a shallow channel therein. The forward portion of the feed member 18 is provided with a further slot 27 diammetrically opposite to the slot 25, and in operation air is drawn into the cartridge 12 along the slot 27, round the circumferential grooves 24 and into the slot 25, from which it passes into the cartridge 12 through the space in the neck of the cartridge 12 formed by the channel in the spigot of the feed member.

As hereinbefore described, ink is drawn by capillary action through the slot 22 to the felt tip 20 when the latter is drawn across the paper. In the event of an excess supply of ink to the feed member 18, the circumferential grooves 24 become blocked with ink and prevent the entry of air into the cartridge 12, thereby cutting off further supply of ink from the cartridge 12 until the blocked passages have been cleared.

In the embodiment shown in Fig. 4, the feed member 18 is of the same form as that shown in Fig. 2, but the felt tip 20 is replaced by a brush 28 clamped or otherwise secured in a metal tube 29 within the nose portion 15 of the instrument. The supply of ink to the brush 28 secured in the tube 29 is controlled by the feed member 18 in the manner hereinbefore described.

WHAT WE CLAIM IS:—

1. A liquid-applying instrument comprising a cartridge filled with ink or other liquid, a feed member adapted to fit into an opening in the cartridge to permit a flow of liquid from the cartridge and a controlled intake of air into the cartridge and a tip of a matt or felt of fibrous material or brush bristles extending from the end of the feed member remote from the cartridge so as to receive liquid therefrom.

2. An instrument according to claim 1, wherein the tip is in the form of a cylindrical body which engages as a push fit in a bore in a housing containing the feed member and the cartridge.

3. An instrument according to claim 2, wherein the feed member is formed with a capillary slot which extends throughout the length of the feed member, whereby in operation ink is drawn through this slot by capillary action when ink is drawn from the tip.

4. An instrument according to claim 3, wherein the forward portion of the feed member is of generally cylindrical form and includes a plurality of circumferential fins defining circumferential grooves round which intake air is caused to pass in its passage to the cartridge.

5. An instrument according to claim 4, wherein the feed member is provided with a rear spigot portion adapted to engage as a push fit in an opening in the cartridge, and wherein the forward portion of the feed member is cut away to provide a shallow longitudinal slot which is continued along the spigot portion of the feed member as a shallow channel therein, whereby air passing round the circumferential grooves in the forward portion of the feed member enters the slot and passes thereafong into the cartridge through the space in the opening of the cartridge formed by the channel in the spigot portion of the feed member.

6. An instrument according to claim 5, wherein the forward portion of the feed member is provided with a further shallow longitudinal slot diammetrically opposed to the first-mentioned slot and the arrangement is such that air is supplied to the further slot for entry into the circumferential grooves in the forward portion of the feed member by which it passes to the first-mentioned slot.

7. An instrument according to any of the preceding claims, wherein the cartridge is in the form of an elongate cylinder and the housing comprises a bored portion containing the cartridge and upon which is fitted a nose-portion for supporting the tip.

8. A liquid-applying instrument substantially as hereinbefore described with reference to Figs. 1 to 3 or 4 of the accompanying drawing.

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